Name: Math Department Date: 7/26/10

Lesson Title: Heptathlon Unit Title: Week 6

Grade Level: 7th

Objectives:

* Students will be able to demonstrate their knowledge on the following skills:
  + Order of operations
  + Adding, subtracting, multiplying, dividing operations
  + Absolute value
  + Opposites
  + Comparisons

Set Induction:

* Take attendance
* Classes must go to the cafeteria
* Opening Ceremony of the first Heptathlon. (location cafeteria where we have ASM)
* Welcome to the Mathematics Heptathlon. Over the next few days we will be participating in a mathematics tournament to review the material we have learned over the summer to prepare us for the skills test on Thursday.
* Explain the point system to the students – you will be working in teams in each of the activities. But the points will be scored individually, so that in the end we will have a first, second, and third place winners. If your team wins, you will get 3 points, if team gets in second then you will get 2 points, and if your team gets in third place, then you will get 1 point. The top three winners will get cups (gold, silver, and bronze).
* (5 min)

Content Outline and Learning Activities:

* There will be two activities of the day. Operation Ladders and Human Ordering.
* Operation Ladders (location – gymnasium)
  + Students will be working in pairs to advance each ladder step to the end. They will be given multiple expressions on index cards. They will have to evaluate the expression by each step. If they evaluate the step right, then the can advance one ladder, if they evaluate the step wrong, then they must step back one ladder. First pair to the end of the ladder wins.
  + (20 min)
* Human Ordering (location – gymnasium)
  + Students will be placed into groups (numbers must be the same depending on how many students are in class that day). We will tape an index card to each student’s back. They are not allowed to talk. They must order themselves from greatest to least and least to greatest by signaling to each other/using other nonverbal signals in order to order the numbers.
  + (15 min)

Closure:

* Hand out homework – Integer Operations Practice due 7/27/10
* And dismissal to next class
* (5 min)

Evaluation Procedure:

* Homework due 7/27/10 – Integer Operations Practice

Additional Notes:

* Index cards for ladders
* Ladders made of tape
* Index cards for human ordering
* Tape
* Integer Operations Practice
* Integers Operations Practice Answer Key

Operation Ladders

Expressions and Answer Key

1. (5 \* 8 – 13) + 4 \* 8 =
2. (15/3) – 7 \* 8 + 16 =
3. -3 \* (-4) – 12 \* 5 =
4. (4 / 2 + 19) – 12 + (6 / 2) =
5. 6 + (6 + 4 \* 5) – (10 – 18 – 3) =
6. 17 \* (20 – 18) + 3 \* 5 =
7. 8 / (8 \* 13) =
8. 5 + 33 – 12 =
9. 7 \* (6 + 3) + 23 =
10. 23 – 72 + (8 \* 5) =

Human Ordering

Integers and Ordering

1. Order the following integers from greatest to least
   1. 14, -2, 27, opposite of 4, 13, |6|

27, 14, 13, |6|, -2, opposite of 4

* 1. |-36|, 53, -100, 1000, 6, opposite of |-3|

1000, 53, |-36|, 6, opposite of |-3|, -100

* 1. -12, opposite of -12, 45, -3, -2, 0

45, opposite of -12, 0, -2, -3, -12

* 1. 15, |14|, |-13|, 0, 8, -5

15, |14|, |-13|, 8, 0, -5

* 1. 52, opposite of -54, 36, -1, 0, 9

Opposite of -54, 52, 36, 9, 0, -1

1. Order the following integers from least to greatest
   1. -13, opposite of 6, |-4|, 5, 18, -1000

-1000, -13, opposite of 6, |-4|, 5, 18

* 1. 42, -3, 18, 22, 56, -38

-38, -3, 18, 22, 42, 56

* 1. |3|, |19|, opposite of |10|, -6, 5, |6|

Opposite of |10|, -6, |3|, 5, |6|, |19|

* 1. 7, -8, opposite of -8, 13, |90|, -1

-8, -1, 7, opposite of -8, 13, |90|

* 1. 41, 18, 89, -3, opposite of |-7|, 0

Opposite of |-7|, -3, 0, 18, 41, 89

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Integer Operations Homework

(more on back)

1. Evaluate the following expressions using the order of operations (PEMDAS)
   1. 15 \* 3 – 42 + 18
   2. (3 \* 8 – 2) + (18 / 3)
   3. 4 \* 8 + (32 \* 4) – 6

* 1. 18 / 9 + 13 \* 3 – 2
  2. 25 \* 4 / 10 – (3 \* 7)

1. Compare the following integers (<, >, or =)
   1. Opposite of 13 \_\_\_\_\_ -5 + -3
   2. |19| \_\_\_ 20 – 13
   3. 3 \_\_\_ opposite of |-3|
   4. |-1| \_\_\_ opposite of -1
2. Order the following integers from least to greatest
   1. 9, -15, |7|, opposite of 1
   2. -4, 18, -23, 45, |2|
   3. 32, 17, -2, |90|, 0
   4. 15, opposite of |15|, -4, -42, 3

Name: Answer Key

Date: due 7/27/10

Integer Operations Homework

(more on back)

1. Evaluate the following expressions using the order of operations (PEMDAS)
   1. 15 \* 3 – 42 + 18
   2. (3 \* 8 – 2) + (18 / 3)
   3. 4 \* 8 + (32 \* 4) – 6

* 1. 18 / 9 + 13 \* 3 – 2
  2. 25 \* 4 / 10 – (3 \* 7)

1. Compare the following integers (<, >, or =)
   1. Opposite of 13 \_\_-13\_\_ -5 + -3
   2. |19| \_>\_ 20 – 13
   3. 3 \_>\_ opposite of |-3|
   4. |-1| \_=\_ opposite of -1
2. Order the following integers from least to greatest
   1. 9, -15, |7|, opposite of 1

-15, opposite of 1, |7|, 9

* 1. -4, 18, -23, 45, |2|

-23, -4, |2|, 18, 45

* 1. 32, 17, -2, |90|, 0

-2, 0, 17, 32, |90|

* 1. 15, opposite of |15|, -4, -42, 3

-42, opposite |15|, -4, 3, 15

Name: Math Department Date: 7/27/10

Lesson Title: Heptathlon Unit Title: Week 6

Grade Level: 7th

Objectives:

* Students will be able to translate verbal expressions to algebraic expressions
* Students will be able to demonstrate their knowledge on the coordinate plane by plotting points on a giant coordinate plane through an activity.

Set Induction:

* Math teachers of each core team will collect the homework from their respective students from last night – Integers Practice.
* classes will go over to the cafeteria
* Opening meeting before we start the events of the day… we will be completing two events today called Translations and Grids. Remind students about the scoring, and even though we are working in teams, we will be scoring points individually for the final tally.
* (6 min)

Content Outline and Learning Activities:

* Two events today. Translations and Grids
* Translations (location – cafeteria)
  + Students will work in pairs to translate verbal expressions into algebraic expressions. Each pair will be given a worksheet with expressions on it. The students must translate each of the statements as fast and as accurately as they can. The first team done and has all the problems answered correctly wins first place.
  + (18 min)
* Grids (location – gymnasium)
  + Students will be put onto 4 teams of equal numbers (depends on how many students missing and we will try to do no more than 6 on a team). There will be 4 coordinate planes on the floor made using painters tape for each team (each teacher to one plane). We will label the axes (both the x and y axes). Explain to students which quadrant is which and which our two axes are. Each of the four teams will be given a set of 10 points. They will have to plot and label each point on their grid. The first team to plot all the points successfully and the fastest wins. Each team will be given a different set of ten points so that the students will not be able to copy of off each other’s grids
  + (18 min)

Closure:

* Hand out homework due tomorrow 7/28/10 – Translations and the Coordinate Plane
* Dismissal to next class
* (3 min)

Evaluation Procedure:

* Translations and the Coordinate Plane homework due tomorrow 7/28/10

Additional Notes:

* Translations worksheets
* Translation worksheets answers
* Painter’s tape
* Index cards for each point (4 different sets of points for the four different teams)
* Algebraic Expressions and the Coordinate Plane homework
* Algebraic Expressions and the Coordinate Plane homework answer key

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Translations

Directions: Translate the following verbal expressions into algebraic expressions.

1. Seven more than five times a number
2. 18 less than eight multiplied by a number
3. Eighteen added to a number C
4. Fifteen minus a number E
5. Six divided by a certain number
6. Thirteen plus three times a number
7. A number squared plus ten
8. Four less than a number multiplied by three
9. Eighty-four minus a number times five
10. Sixteen more than a number B

Name: Answer Key

Date: 7/27/10

Translations

Directions: Translate the following verbal expressions into algebraic expressions.

1. Seven more than five times a number

5x + 7

1. 18 less than eight multiplied by a number

8x – 18

1. Eighteen added to a number C

18 + C

1. Fifteen minus a number E

15 – E

1. Six divided by a certain number

6 / x

1. Thirteen plus three times a number

13 + 3x

1. A number squared plus ten

X2 + 10

1. Four less than a number multiplied by three

3x – 4

1. Eighty-four minus a number times five

84 – 5x

1. Sixteen more than a number B

16 + B

Grids – Points on Coordinate Plane game

Team 1: Team 2: Team 3: Team 4:

(3, 8) (5, -5) (7, 14) (-7, 14)

(-4, -13) (6, 3) (-1, 10) (1, -10)

(14, 0) (-8, 14) (9, -5) (0, 0)

(0, 0) (13, 0) (-7, 12) (13, -8)

(-2, -1) (0, -7) (5, -8) (6, -3)

(0, -8) (1, -12) (-11, 0) (-9, 3)

(-1, 1) (-6, -4) (0, 0) (0, 9)

(9, 3) (0, 0) (-3, -14) (-8, 0)

(-4, -6) (-3, -8) (6, 3) (-5, 5)

(5, -5) (-1, -1) (2, -1) (-12, 1)

Points plotted on pieces of graph paper (see attached)

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Algebraic Expressions and the Coordinate Plane Homework

1. Translate the following verbal expressions into algebraic expressions
   1. A number tripled plus five
   2. Eight more than three times a number
   3. Six less than a number E
   4. Twenty-five minus R
   5. Seven less than five times a number
2. Evaluate the following algebraic expressions when a = 3, b = -2, and c= -10
   1. a + b – c
   2. a\*b + a
   3. c / b + ac
   4. ab + ac
3. Draw a coordinate plane on the back of this paper. Label the x and y axes, label the origin, and plot and label the following points
   1. (3, 5)
   2. (7, 6)
   3. (-2, 8)
   4. (-4, -1)
   5. (0, 0)

Name: Answer Key

Date: 7/28/10

Algebraic Expressions and the Coordinate Plane Homework

1. Translate the following verbal expressions into algebraic expressions
   1. A number tripled plus five
   2. Eight more than three times a number
   3. Six less than a number E
   4. Twenty-five minus R
   5. Seven less than five times a number
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   1. a + b – c
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   3. c / b + ac
   4. ab + ac
3. Draw a coordinate plane on the back of this paper. Label the x and y axes, label the origin, and plot and label the following points
   1. (3, 5)
   2. (7, 6)
   3. (-2, 8)
   4. (-4, -1)
   5. (0, 0)

Name: Math Department Date: 7/28/10

Lesson Title: Heptathlon Unit Title: Week 6

Grade Level: 7th

Objectives:

* The students will be able to solve one and two step equations
* The students will be able to demonstrate their knowledge about the order of operations by playing 24.

Set Induction:

* Take attendance
* Collect homework from students – Algebraic Expressions and the Coordinate Plane
* Classes will go over to the cafeteria.
* Opening meeting of Heptathlon… we will discuss the two events of the day, Solving equations and 24 (the card game).
* (5 min)

Content Outline and Learning activities:

* Two events of the day – Solving equations and 24 the card game
* Solving equations (location – cafeteria)
  + Students will be put onto teams (depending on how many students absent, same number per team). Each student on each team will be given one index card with an equation on it. They must solve their equation for the unknown variable. The first student will run to the variable field and find the answer to their equation, when they have the right answer card, the second person may go (after they have solved their equation) to get their card and so on. The first team done with all of the correct variable cards will win.
  + (20 min)
* 24 (location – cafeteria)
  + Teams will be given cards with four integers on them. They can use addition, subtraction, multiplication, division, must use the integers only once, and use the order of operations to get either 24 or -24. The students will be given 10 min (timed) to solve as many cards as they can (they must have work written on a piece of paper, otherwise they will not get credit for that card). We will tally up the cards by the number of dots (one dot for one point, two dots for two points, and three dots for three points).
  + (15 min)

Closure:

* Hand out homework – Solving equations practice due 7/29/10
* Dismissal to next class
* (5 min)

Evaluation Procedure:

* Homework – Solving equations practice due 7/29/10

Additional Notes:

* Solving equations – equations and answers
* Solving equations – index cards with one equation per student
* 24 cards
* Solving Equations practice
* Solving Equations practice answers

Solving Equations game

Equations and answers

-10 + x = 0

x / 3 = 3

x – 10 = -5

m + 12 = 16

7p = 63

6 = a/4 + 2

9x – 7 = -7

-15 = -4m + 5

0 = 4 + n/5

8n + 7 = 31

-9x + 1 = -80

-16 + x = -15

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Solving Equations Practice

(there is more on back)

Directions: Solve the following equations for the variable. SHOW ALL WORK!

1. x – 4 = -6
2. x/5 = -2
3. 5x + 10 = 65
4. -7x – 2 = 26
5. -4x – 7 = -7
6. -5 + 6x = -77
7. -2x + 9 = -9
8. -3x + 2 = -4
9. 4x = 44
10. 7x + 6 = 34
11. -6x + 1 = 37
12. -7x + 9 = 37
13. -5x + 5 = -55
14. 10 – 3x = -26
15. x – 1 = -1

\*\*Now, think of one question that you have for the skills test that we can go over in class tomorrow. You must come up with a question to ask your teacher. If you have no questions about the material, think of a question about math or another related topic. Write in the space below.

Name: Answers

Date: due 7/29/10

Solving Equations Practice

Directions: Solve the following equations for the variable.

1. x – 4 = -6
2. x/5 = -2
3. 5x + 10 = 65
4. -7x – 2 = 26
5. -4x – 7 = -7
6. -5 + 6x = -77
7. -2x + 9 = -9
8. -3x + 2 = -4
9. 4x = 44
10. 7x + 6 = 34
11. -6x + 1 = 37
12. -7x + 9 = 37
13. -5x + 5 = -55
14. 10 – 3x = -26
15. x – 1 = -1

Name: Math Department Date: 7/29/10

Lesson Title: Heptathlon Unit Title: Week 6

Grade Level: 7th

Objectives:

* Students will be able to solve word problems using the pre-algebra skills learned this summer

Set Induction:

* Take attendance
* Teachers will collect homework from last night – Solving Equations
* Classes will go to the cafeteria
* Opening meeting of heptathlon – (location – cafeteria) – final day of the heptathlon!! The last event today will be Round-A-Bout’s, word problems.
* (5 min)

Content Outline and Learning Activities:

* The final event of the Heptathlon – Round-A-Bout’s
* Round-A-Bout’s (location – cafeteria)
  + Word problem game. Students will be working in pairs. There will be one question on each table in the cafeteria. The students will go around to each table and answer all of the word problems. Students will only have 3 minutes (timed at each table) to answer the questions. When we say the three minutes are over, they must move on to the next question. **Students must write on their paper what number they are answering, otherwise they will not get credit for that question**.
  + (21 min)
* Students will get into their core teams and students will be given the remaining time to have any last questions answered before the skills test. Student’s questions will be with their homework from last night. (15 min)

Closure:

* Hand out homework due 7/30/10 – Teacher Evaluation
* Dismissal to next class
* (4 min)

Evaluation Procedure:

* Teacher Evaluation due 7/30/10

Additional Notes:

* Round-A-Bout’s questions and answers
* Round-A-Bout’s worksheets for student work
* Construction paper with 7 questions (3 of same question per table – all numbered)
* Teacher Evaluation

Round-A-Bout’s

Word Problems and Answers

1. Kevin is going to join a swim club. There is a $45 initiation fee. It costs $28 for each month that he is a member. Kevin only has $300 to pay for the membership. For how many months can he be a member? Will he be able to be a member for a full year?
2. You went to the department store for back to school shopping and picked out 6 shirts and 4 pairs of pants with a total worth of $170. When you paid for the clothes, the cashier took $3 off the price of each shirt and $5 off the price of each pair of pants. There was no sales tax. How much did you have to pay?
3. Sally went to the grocery store with $30 in her pocket. She bought 3 items of the same amount. After her purchase, she had only $15 in her pocket. How much was each item? Write an equation to solve this problem.
4. Mark had $70 in the checking account at his bank. He then took out $50 over a total of 5 withdrawals. How much money did Mark take out per each withdrawal? Write an equation to solve this problem.
5. Sue had 10 bags of potato chips. She then gave 2 bags to her friend. How many bags of potato chips does Sue have left? If she ate 2 of the remaining bags of potato chips each day, how many days did it take her to eat the rest of the potato chips?
6. Bob had $60 in his wallet. He bought 3 pairs where each pair of sock cost the same amount. After buying the socks, Bob only had $45 left. How much did he spend per pair of socks? Write an equation to solve this problem.
7. Sue ate 15 bananas over a total of 5 days. If she ate 2 on the first day, 3 on the second day, 4 on the third day, and 3 on the fourth day, how many did she eat on the fifth day? Write an equation to solve this problem.

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Round-A-Bout’s

Directions: Solve each of the five problems on the table. You will only be given 3 minutes per question. **Write down the number of the question you are answering, otherwise you will receive no credit for that answer.**

Teacher Evaluation

Directions: Answer all of the following statements. The scale runs from agree to disagree, label on the scale in the range that you feel is appropriate.

1. Teacher was very helpful

Disagree

Agree

1. Class was taught at a good speed

Disagree

Agree

1. I feel well prepared for the school year

Disagree

Agree

1. I feel like I learned something in this class

Disagree

Agree

1. I understand why math is important

Disagree

Agree

Directions: Answer the following questions. Explain your answers.

1. Is there anything you would have liked to study that was not discussed this summer?
2. What do you think your teacher did well?
3. How could your teacher improve this class?

Name: Math Department Date: 7/30/10

Lesson Title: Heptathlon Unit Title: Week 6

Grade Level: 7th

Objectives:

* Students will be able to show their knowledge on the mathematical skills learned this summer by seeing their points earned throughout the Heptathlon.

Set Induction:

* Take attendance
* Teachers will collect evaluations (homework from last night – 7/30/10)
* Classes will come over to the cafeteria for the awards ceremony
* (5 min)

Content Outline and Learning Activities:

* We will hold the awards ceremony for the 2010 Heptathlon. The top three individuals will receive prizes. They will be called up to the stage and given their awards (first place is awarded a gold cup, second place is awarded with a silver cup, and third place is awarded with a bronze cup). After the top three are given their awards we will give out certificates to everyone that has participated in the Heptathlon.
  + (location – cafeteria were we have ASM)
* With all of the students (all four teams), have each student say something they learned over the past 6 weeks at Summerbridge that will help them in their math classroom at school in the fall.
* (15 min)

Closure:

* N/A

Evaluation Procedure:

* N/A

Additional Notes:

* Collect evaluations
* Three cups for awards
* Heptathlon certificates for each student